

CLAIMS

1. Device for image guided automated insertion of an elongated hollow needle to a desired location in an animal body for effecting radiation therapy of cancerous tissue in said body comprising:

- needle positioning means for positioning said needle having a distal end and a proximal end relative to said desired location;
- needle drive means for driving said needle with its distal end towards said desired location; and
- real time imaging means for creating and presenting an image of said desired location and the position of the distal end of said needle during insertion of said needle;

characterized in that

the device is arranged for performing subsequent insertions using only one single needle, wherein

the needle drive means are arranged for retracting said single needle from said desired location, and wherein

said needle positioning means are arranged for repositioning said single needle relative to a subsequent desired location prior to a subsequent insertion.

2. A device according to claim 1, **characterized in that** for repositioning said single needle between subsequent insertions said retracted distal end of the needle is pivoted around at least one pivoting point.

3. A device according to claim 2, **characterized in that** said pivoting point is located inside said animal body.

4. A device according to claim 2, **characterized in that** said pivoting point is located outside said animal body.

5. A device according to claim 2, **characterized in that** said pivoting point is located at skin level of said animal body.

6. A device according to claim 1, **characterized in that** said

needle insertion means comprise a guidance channel having a proximal end and distal end for accommodating said single needle.

7. A device according to claim 6, **characterized in that** said needle positioning means comprise a robotic system connected to said guidance channel.

8. A device according to claim 1, **characterized in that** the proximal end of said single elongated hollow needle is connected to an after loading apparatus.

9. A device according to claim 8, **characterized in that** the proximal end of said single elongated hollow needle is connected to an after loading apparatus by means of a flexible catheter tube.

10. A device according to claim 8, **characterized in that** the after loading device is a radioactive seed loading apparatus, a HDR, PDR or LDR-device.

11. A device according to claim 8, **characterized in that** the after loading device is connected to the robotic system of the needle positioning means.

12. A device according to claim 1, **characterized in that** said single elongated hollow needle has an open distal end.

13. A device according to claim 1, **characterized in that** said single elongated hollow needle has a closed distal end.

14. A device according to claim 1, **characterized in that** said single elongated hollow needle is made of a non-ferromagnetic material, for example of a titanium-zirconium alloy.

15. A device according to claim 1, **characterized in that** the real time imaging means are ultrasound imaging means.

16. A device according to claim 1, **characterized in that** the real time imaging means are magnetic resonance imaging means.

17. A device according to claim 1, **characterized in that** the real time imaging means are computer tomography imaging means.